A/V Switch

Local application

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A local application called AVMS supports an Audio/Video Switcher. It monitors RS-232 serial communications with the switcher controller, sending commands when a new selection is required and querying the switcher to maintain an up-to-date reading of the current selection.

LA parameters

```
ENABLE  B<00DD>
UNIT NUM <0000>
SELECT  C<0180>
CYCLES   <000F>
```

The SELECT channel is a dummy settable channel whose setting value is monitored by AVMS. When the setting value changes, AVMS sends an appropriate selection command to the serial port that is plugged into the AVM hardware. The reply message is analyzed and the result value deposited into the reading value of the SELECT channel. In the absence of setting changes, AVMS sends a status request message to the AVM and analyzes the reply message to install into the reading value. In this way, the current reading of the SELECT channel reflects the current selection of the switch. The current setting value is the switch selection most recently intended. The CYCLES parameter indicates how frequently the status query message is issued.

The baud rate used is probably 19200 baud, which is a 2000 bytes/sec rate. Even if it is set to a rate of 9600 baud, it would mean 1000 bytes/second. The selection command is about 10 characters, and the response message is about 25 characters. So the entire transaction can be completed within one 15 Hz cycle, assuming no delay beween reception of the command and transmission of the reply. Any such delay could make it longer than one cycle, of course.

Each cycle, the AVMS local application monitors the value of the SELECT channel setting. When it detects a change in the value, for which valid values are in the range 1–16, it prepares to send a selection command of the following format:

```
AVMxxBii
```

where xx is the unit number for the specified A/V switch and ii is the desired selection. The unit number can range from 00–15 and is set by a 4-bit switch inside the switch hardware. (Four other bits select the baud rate.) The selection code is in the range 01–16. After a setting message has been sent, a response is expected of the format

```
AVMxx-A/V switched to ii
```

When AVMS sees a response in that format, it updates the reading field of the SELECT channel.

In the absence of a need for choosing a new selection, using the CYCLES parameter to specify how often, the status query message is sent in the following format:

```
AVMxxS
```

The response to the status query message should be of the form:

```
AVMxx-A/V input = ii
```

Again, such a response message is analyzed by AVMS and the reading field of the SELECT channel is set to reflect the ii value returned.

In the example above, the parameters indicate that the unit number used for the value of xx is 00. The SELECT channel is 0180, and the status queries are issued every 15 cycles, or one second.

AVMS performs the serial communication using the listype 36 that is designed to support it. The ident is comprised of the local node number and a port number of 0000. The reply data is a structure that includes a 2-byte integer count of characters, followed by that number of characters. The buffer must be large enough to contain the longest line of text anticipated, because only complete lines will be included in the reply buffer, with each line terminated with a <CR> character. Make the request for 15 Hz replies and call for the latest values on each cycle. In many cases, the 2-byte count may indicate zero, so no lines need be processed. For this application, a buffer of 32–64 characters should be more than sufficient. When forming the setting message using this listype, only the text need be sent as setting data. Setting handler will automatically append a <CR><LF> to the text that it sends out the serial port. (It is hoped that the A/V switch hardware will ignore the <LF>!)